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09/734,021	12/12/2000	Okinori Tsuchiya	35.C14987	3755
5514 7590 07/01/2004 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			EXAMINER JONES, DAVID	
			ART UNIT 2622	PAPER NUMBER 6
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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/734,021

Applicant(s)

TSUCHIYA ET AL.

Examiner

David L Jones

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32 is/are allowed.
- 6) ☒ Claim(s) 1-24, 27-31, 33-35 is/are rejected.
- 7) ☒ Claim(s) 25 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 1/12/01 was filed after the mailing date of the application on 12/12/00. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: fig. 3, #B4; fig. 8, #S13; fig. 10, #T11, T12, T32, T33; fig. 16, #S76, S77; fig. 17, #S81-S85. Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character FIG. 10, "P1" has been used to designate both P1 and P3. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### *Specification*

5. The disclosure is objected to because of the following informalities: Page 26, line 11 designates "234", it is believed to mean "235".

Appropriate correction is required.

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Image processing method and apparatus for color correction of an image.

#### *Claim Rejections - 35 USC § 112*

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2622

8. The term "tint" in claims 1, 2, 5, 11, 16, 19, 22, and 29 is a relative term, which renders the claim indefinite. The term "tint" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. According to the specification, page 12, lines 20-27, are drawn to holding of the Y (brightness signal) and smoothing both chrominance signals simultaneously. Further, although the claim is made part of the specification as originally filed there appears to be no particular definition of the term.

9. The term "highlight part" in claim 6 is a relative term, which renders the claim indefinite. The term "highlight part" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In the specification, page 19, starting on line 19, the specification details a step of detecting a chromaticity change judgment, but it not found where in the specification details detecting a highlight part or defining a highlight part.

10. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites that *the filtering process uses the peripheral pixels of the input color image being the notable pixel, and the color image data subjected to the smoothing process is used in a smoothing process for other color image data.*

11. The term "scene change part" in claims 13 and 16 is a relative term, which renders the claim indefinite. The term "scene change part" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In the specification, page 19,

Art Unit: 2622

starting on line 19, the specification details a step of detecting a chromaticity change judgment, but it not found where in the specification details detecting a scene change part or defining a scene change part.

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1, 2, 7, 16, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (US 5,742,410).

**Regarding claim 1**, Suzuki discloses an image processing method (column 7, lines 41-58) comprising:

an input step (fig. 3) of inputting color image data composed of a signal representing brightness (luminance)  $L^*$  and a signal representing chrominance  $a^*b^*$ ; and

a smoothing process step (113) of performing a smoothing process to the signal representing chrominance, while holding the signal representing luminance.

**Regarding claim 2**, Suzuki further discloses that the input step (fig. 1, 3) comprises a conversion step (column 7, lines 16-30) converting the color image data composed of plural

color component signals (R, G, B) into signals representing luminance ( $L^*$ ) and chrominance ( $a^*b^*$ ).

**Regarding claim 7**, Suzuki discloses (column 7, lines 41-58) that the smoothing process is performed by using symmetrical filtering with respect to a notable pixel in both the vertical and horizontal directions as shown in figs. 4-5.

**Regarding claim 16**, Suzuki discloses an image processing apparatus (column 7, lines 41-58) comprising:

an input step (fig. 3) of inputting color image data composed of a signal representing brightness (luminance)  $L^*$  and a signal representing chrominance  $a^*b^*$ ; and

a smoothing process step (113) of performing a smoothing process to the signal representing chrominance, while holding the signal representing luminance.

**Regarding claim 19**, Suzuki discloses a computer-readable medium (column 7, lines 41-58) comprising:

an input step (fig. 3) of inputting color image data composed of a signal representing brightness (luminance)  $L^*$  and a signal representing chrominance  $a^*b^*$ ; and

a smoothing process step (113) of performing a smoothing process to the signal representing chrominance, while holding the signal representing luminance.

### ***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2622

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 3-4, 8-9, 13-14, 18, 21-24, 27-31, 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki.

**Regarding claim 3**, Suzuki discloses (column 7, lines 59-67 and column 8, lines 1-41) a judgment step whereby upon detection of a luminance edge the chrominance smoothing is suppressed as detailed in column 8, lines 11, 32. Further, in column 11, lines 37-59, Suzuki discloses that the edge detection is done on a pixel-by-pixel basis and the  $a^*b^*$  signals are subjected to smoothing on a pixel-by-pixel basis. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Suzuki is not smoothing a chrominance signal when a luminance edge is detected.

**Regarding claim 4**, Suzuki discloses (column 7, lines 41-58) a step of enhancing the luminance edge when an edge is detected by absolute value calculation (fig. 3, 114 & 115) and maximum value determination (116).

**Regarding claim 8**, Suzuki discloses (column 7, lines 41-58) wherein the smoothing process is the filtering process, which uses the notable pixel for smoothing as shown in fig. 5. The claim is understood to mean that the smoothing is taking into effect the notable pixel as shown in figure 5 as the middle pixel similar to the instant application figures 5, 6, and 7.

**Regarding claim 9**, Suzuki discloses (column 8, lines 42-67) that the smoothing process is the process, which uses a filter with changing weight depending on the notable pixel or smoothed area.



**Regarding claim 13**, Suzuki discloses (column 11, lines 37-67 and column 12, lines 1-34) that the system is taking into consideration that the edge detection is done on a pixel-by-pixel basis and the  $a*b$  signals are subjected to smoothing on a pixel-by-pixel basis. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Suzuki has taken into consideration a change of image values. Further, as taught in column 12, lines 25-34, that the coefficients of the filtering is changed according to equation 1.

**Regarding claim 14**, Suzuki discloses (column 7, lines 41-58) wherein the smoothing process is the filtering process, which uses the notable pixel for smoothing as shown in fig. 5. The claim is understood to mean that the smoothing is taking into effect the notable pixel as shown in figure 5 as the middle pixel similar to the instant application figures 5, 6, and 7.

**Regarding claim 18**, Suzuki discloses (column 11, lines 37-67 and column 12, lines 1-34) that the system is taking into consideration that the edge detection is done on a pixel-by-pixel basis and the  $a*b$  signals are subjected to smoothing on a pixel-by-pixel basis. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Suzuki has taken into consideration a change of image values. Further, as taught in column 12, lines 25-34, that the coefficients of the filtering is changed according to equation 1.

**Regarding claim 21**, Suzuki discloses (column 11, lines 37-67 and column 12, lines 1-34) that the system is taking into consideration that the edge detection is done on a pixel-by-pixel basis and the  $a*b$  signals are subjected to smoothing on a pixel-by-pixel basis. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Suzuki has taken into consideration a change of image values. Further, as taught in column

Art Unit: 2622

12, lines 25-34, that the coefficients of the filtering is changed according to equation 1. And that the system is incorporated within a computer system.

**Regarding claim 22**, Suzuki discloses (column 11, lines 37-67 and column 12, lines 1-34) that the system is taking into consideration that the edge detection is done on a pixel-by-pixel basis and the  $a^*b^*$  signals are subjected to smoothing on a pixel-by-pixel basis. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Suzuki has taken into consideration a change of image values. Further, as taught in column 12, lines 25-34, that the coefficients of the filtering is changed according to equation 1. As taught by Suzuki that filtering is accomplished by a pixel-by-pixel basis thereby quantifying that any change small or large is taken into account.

**Regarding claim 23**, Suzuki discloses an image processing method (column 7, lines 41-58) comprising:

an input step (fig. 3) of inputting color image data composed of a signal representing brightness (luminance)  $L^*$  and a signal representing chrominance  $a^*b^*$ ; and

a smoothing process step (113) of performing a smoothing process to the signal representing chrominance, while holding the signal representing luminance.

**Regarding claim 24**, Suzuki discloses (column 12, lines 21-34) that the system is optimized on a moving basis according to reduction or enlargement magnifications.

**Regarding claim 27**, Suzuki discloses (column 7, lines 41-58) that the luminance is enhanced after edge detection through the absolute value calculation circuits and then to the maximum value determination circuit.

**Regarding claim 28**, Suzuki discloses (column 7, lines 59-67 and column 8, lines 1-9) that the chroma or saturation values are adjusted for optimum use.

**Regarding claim 29**, Suzuki discloses (column 7, lines 41-58) that the luminance is enhanced after edge detection through the absolute value calculation circuits and then to the maximum value determination circuit. Further, Suzuki discloses (column 7, lines 59-67 and column 8, lines 1-9) that the chroma or saturation values are adjusted for optimum use.

**Regarding claim 30**, Suzuki discloses (column 11, lines 37-67 and column 12, lines 1-34) that the system is taking into consideration that the edge detection is done on a pixel-by-pixel basis and the  $a*b^*$  signals are subjected to smoothing on a pixel-by-pixel basis. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Suzuki has taken into consideration a change of image values. Further, as taught in column 12, lines 25-34, that the coefficients of the filtering is changed according to equation 1. It is understood that by subjecting the pixels on a pixel-by-pixel through the smoothing process based upon the luminance edge detected that any features or small or large change in luminance or chroma is taken into effect.

**Regarding claim 31**, Suzuki discloses (column 1, lines 8-14) that the system is used within a color copier, facsimile machine, etc. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a user would be able to make changes to the amount of filtering or reduction in chroma used on an image.

**Regarding claim 33**, Suzuki discloses (column 11, lines 37-67 and column 12, lines 1-34) that the system is taking into consideration that the edge detection is done on a pixel-by-pixel basis and the  $a*b^*$  signals are subjected to smoothing on a pixel-by-pixel basis. Therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was made that Suzuki has taken into consideration a change of image values. Further, as taught in column 12, lines 25-34, that the coefficients of the filtering is changed according to equation 1. As taught by Suzuki that filtering is accomplished by a pixel-by-pixel basis thereby quantifying that any change small or large is taken into account, thereby calculating the value of each pixel.

**Regarding claim 34**, Suzuki disclose in figs. 1 and 13 an image output device, and as taught in column 1, lines 8-14 that the system is used within a color copier, facsimile machine, etc.

**Regarding claim 35**, Suzuki discloses (column 11, lines 37-67 and column 12, lines 1-34) that the system is taking into consideration that the edge detection is done on a pixel-by-pixel basis and the  $a*b^*$  signals are subjected to smoothing on a pixel-by-pixel basis. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Suzuki has taken into consideration a change of image values. Further, as taught in column 12, lines 25-34, that the coefficients of the filtering is changed according to equation 1. As taught by Suzuki that filtering is accomplished by a pixel-by-pixel basis thereby quantifying that any change small or large is taken into account, thereby calculating the value of each pixel.

16. Claims 10, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawase (US 5,757,375).

**Regarding claims 10 and 17**, Kawase discloses (column 3, lines 22-67 and column 4, lines 1-7) a method and an apparatus that allows an image to be inputted to the graphics subsystem (fig. 1, #3) and when the CPU of the system instructs the graphics subsystem 3 to draw

Art Unit: 2622

objects of a certain color in a certain position (total coordinates), the geometry processor 5 divides the objects into a plurality of polygons, obtains the screen coordinates of the vertex of each polygon, and computes the color information on these coordinates. Based on this result, the rasterizer 11 of the raster processor 7 computes the coordinates and color information for pixels inside each polygon. The frame buffer drawing unit 13 writes the computed coordinates and color information of the pixels to the frame buffer 15, and the controller 17 reads the contents of the frame buffer 15 and outputs them to the CRT

display 9. There are some cases in which the above-described object is a line or a point and, in such cases, the output of the geometry processor 5 is output not for each polygon but for each line or point. Also, there is also a case in which the frame buffer drawing unit 13 only writes to the frame buffer 15, but generally the contents of the frame buffer 15 change based on the output of the rasterizer 11. Writing is also thought to be such that the contents of the frame buffer 15 are replaced by the output of the rasterizer 11. There are some cases in which such a change is indicated by the CPU of the system 1. The connection between the frame buffer drawing unit 13 and the frame buffer 15 is then bidirectional. According to Kawase, the raster processor 7 includes the frame buffer drawing unit 13 and the frame buffer 15 as shown in fig. 3. The frame buffer drawing unit 13 includes a drawing logic 21 and a filter 23. The drawing logic 21 is connected to the frame buffer 15 through a bus 25 for reading the content of the frame buffer 15 and through a bus 29 for writing the contents computed by the drawing logic 21 to the frame buffer 15. Also, the drawing logic 21 and the filter 23 are connected by a bus 27, and the filter 23 and the frame buffer 15 are connected by a bus 31. The drawing logic 21 receives certain coordinates and color information on a screen and also operating instructions

such as replacement and blending, which are output from the rasterizer 11 in fig. 2. An address in the frame buffer 15 corresponding to certain coordinates on a screen is obtained, and the contents of the address is read from the frame buffer 15. An operation, which is instructed by read contents and color information from the rasterizer 11, is performed, and the color information generated is written to the above-described original address. This color information is also output to the filter 23 and filtered (ordinarily, averaged). This filtered color information is also written to the frame buffer 15. The controller 17 in FIG. 2 reads the written color information of the frame buffer 15 and outputs it to the CRT display 9.

**Regarding claim 20**, is analogous to claims 10, and 17, except the computer readable medium. Kawase discloses (column 3, lines 8-21) that the system is included within a normal computer system.

17. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawase as applied to claims 10, 17, and 20 above, and further in view of Suzuki .

**Regarding claim 11**, Kawase discloses (column 3, lines 22-67 and column 4, lines 1-7) inputting a drawing image that includes the color and line instructions. On the basis of that instruction a filter process to remove the noise from the instruction. Kawase does not specifically detail the division of luminance and chrominance.

Whereas Suzuki discloses an image processing method (column 7, lines 41-58) comprising: an input step (fig. 3) of inputting color image data composed of a signal representing brightness (luminance)  $L^*$  and a signal representing chrominance  $a^*b^*$ ; and a smoothing process

step (113) of performing a smoothing process to the signal representing chrominance, while holding the signal representing luminance.

Kawase and Suzuki are analogous art because they both are from the same field of endeavor, image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the signal division of Suzuki with the system of Kawase.

The suggestion/motivation for doing so would have been to provide for any color deviation that can be corrected by converting on the color difference or chroma signals.

Therefore, it would have been obvious to combine Kawase with Suzuki to obtain the invention as specified in claim 11.

**Regarding claim 12**, Kawase discloses (column 3, lines 22-67 and column 4, lines 1-7) inputting a drawing image that includes the color and line instructions. On the basis of that instruction a filter process to remove the noise from the instruction. Kawase does not specifically detail the division of luminance and chrominance.

Suzuki discloses (column 7, lines 59-67 and column 8, lines 1-41) a judgment step whereby upon detection of a luminance edge the chrominance smoothing is suppressed as detailed in column 8, lines 11, 32. Further, in column 11, lines 37-59, Suzuki discloses that the edge detection is done on a pixel-by-pixel basis and the a\*b\* signals are subjected to smoothing on a pixel-by-pixel basis. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Suzuki is not smoothing a chrominance signal when a luminance edge is detected. Further, that by doing so is taking into consideration the edge of a graphic image as well as a line.

***Allowable Subject Matter***

18. Claim 32 is allowed.

19. The following is an examiner's statement of reasons for allowance:

the instant application recites the limitation of "wherein the order of said color noise reduction process step and scaling step is controlled in accordance with a scaling rate or scaling method".

The prior art fails to teach or suggest this limitation.

20. Claims 25 and 26 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kuwahara et al. (US 5,541,668) discloses a system and method to divide luminance and chrominance whereby the chrominance values are smoothed with a limited number of memories at a high speed.

Tse (US 5,477,345) discloses a system and method that relates to subsampling processors and a three color sensor array that may be employed to supply subsampled chrominance data to a printing machine, a computer memory device or other device.



Art Unit: 2622

Torborg, Jr. (US 5,010,515) discloses an interactive 3-dimensional computer graphics display system has an arbitrary number of parallel connected graphic arithmetic processors (GAPS) coupled to an applications processor through a display list management module and coupled to an image memory unit that generates video output.

Herregods et al. (US 5,828,815) discloses a method is disclosed for producing a color image by printing on a sheet a plurality of monochrome images on top of each other. The monochrome image is composed of microdots, having an address (x,y). Each microdot is represented by a pixel.

Nakagawa et al. (US 4,775,888) discloses a motion detector for a chrominance signal, which is used with a TV receiver equipped with a video signal motion detector.


***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L Jones whose telephone number is (703) 305-4675. The examiner can normally be reached on Monday - Friday (7:00am - 3:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on (703) 305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David L. Jones



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